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Two New Spider Mites Parasitic on Japanese Conifers[1)]

With 10 Text-figures

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(Communicated by T. UCHIDA)

The two spider mites here described have been generally known as important noxious mites on coniferous saplings in Japan, but no specific name has as yet been given to them. The present author has identified them as two new species belonging to the genus *Paratetranychus* in the Tetranychidae.

Before going further, the author wishes to express here his sincere thanks to Professor Tohru Uchida, under whose helpful guidance the present study has been carried out. Thanks are also due to Drs. A. E. Pritchard, E. W. Baker, E. A. McGregor and M. André for their valuable suggestions and much help rendered during the course of this work. Moreover, the author is indebted to Dr. M. Inoue, Messrs. T. Takekosi and K. Kato for their kind help in the collection of material.

Paratetranychus hondoensis n. sp.

? *Teramychus* sp. ? (partim), Niijima, *Textb. Jap. Forest Protect.*, p. 335, fig. 51, 1903.

? *Tetranychus* sp. (partim), Niijima, *Textb. Forest Protect., new ser.*, vol. 1, p. 339, fig. 106, 1923; Matsushita, *Textb. Forest Pests*, p. 401, 1943; Yamamoto, *Textb. Forest Protect.*, p. 137, 1948.

Female. Body from above oval, 360μ long and 260μ wide in widest part. Colour reddish-brown. Last segment of palpus thicker than long; terminal sensillum slender; dorsal sensillum very slender; 5 additional setae borne on "thumb." Mandibular plate emarginate in front, length to breadth ratio 10:6. Legs shorter than body, normally

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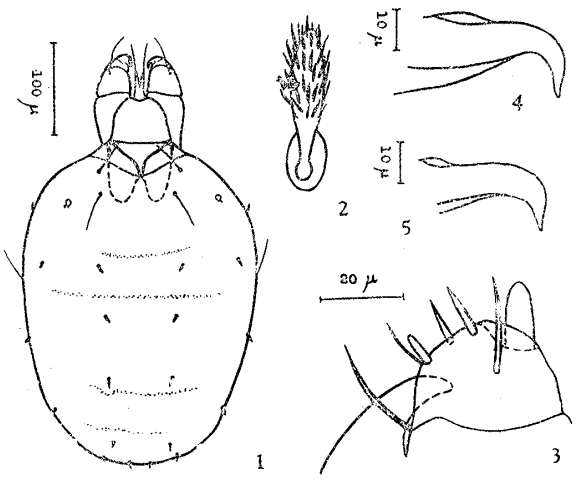
bearing many slender setae. Leg I with relative lengths of segments as follows: Trochanter, 12; femur, 23; patella, 12; tibia, 12; tarsus, 17. Tarsus I dorsally provided with 2 sets of duplex setae rather closely set together; 4 setae borne proximad of proximal set of duplex setae; proximal duplex setae of tarsus I with proximal member about one-third as long as distal member; distal duplex setae of tarsus I with proximal member one-fifth as long as distal member. Empodial claw of leg I slender, sickle-shaped, with 5 pairs of proximoventral setae that do not exceed claw; 4 tenent hairs borne on onychium, a pair on each side of claw base. One perfect and one imperfect eye cornea on each side. Peritreme slender, dilated distally. Dorsum of body with mostly transverse striae, and with several conspicuous transverse folds which are of rather irregular lengths. Dorsal setae do not arise on tubercles. They are various in structure; vertical, inner scapular and outermost humeral setae are slender, tapering and finely pubescent, while others are extremely short, pubescent, and blunted at distal end. Eggs red, spherical.



Figs. 1–5. *Paratetranychus hondoensis* n. sp. 1. Dorsal view of female, legs excluded. 2. Dorsal seta of female, schematic, greatly magnified. 3. Distal part of palpus of female. 4. and 5. Aedeagus.

Male. Body from above sagittate in outline, 270μ long and 160μ wide in widest part. Accessories on last segment of palpus are subequal in arrangement to those in female; dorsal sensillum slender. All dorsal setae comparatively long and slender. Aedeagus bearing dorsally conspicuous basilar lobe; shaft posteriorly tapering and deflected a little less than 90° from general axis of aedeagus to form slender and attenuate hook which is much shorter than shaft.

Holotype. Male, Sibusawa, Kanagawa Pref., Nov. 9, 1953 (S. Ehara leg.), on *Cryptomeria japonica*.

Paratypes. Two males and ten females, locality, host and date same as the holotype.

The holotype and paratypes are placed in the Zoological Institute, Faculty of Science, Hokkaido University.

Distribution and host. Honshu (Sibusawa, Kanagawa Pref., on the Japanese cedar, *Cryptomeria japonica*).

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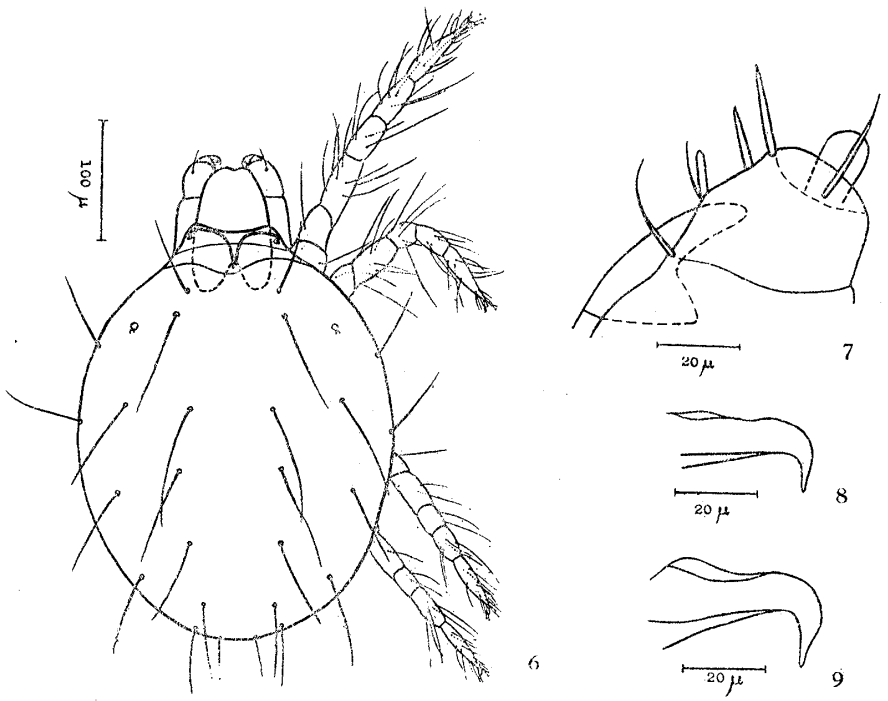
Remarks. *Paratetranychus hondoensis* n. sp. is similar to *P. brevipilosus*[1] Zacher, 1932, but is different in the notched mandibular plate and in the lengthiness of the vertical, inner scapular, and the outermost humeral setae of the dorsum of the female. This species seems to show some resemblances to *P. pini* Hirst, 1924, but is distinguished from the latter by the form of the aedeagus, the slenderer terminal sensillum and the claw of the palpus, which does not surpass the last segment. *Paratetranychus hondoensis* n. sp. is injurious to the saplings and young plants of the Japanese cedar.

Paratetranychus inouei n. sp.

? *Tetranychus* sp. (partim), Harada, *Principl. Forest Enem. Control*, p. 72, 1927; Inoue, Prakt. Anleit. f. Vorbeug. u. Vertilg. v. biolog. Forstschäd., p. 121, fig. 75, 1942; Matsushita, *Textb. Forest Pests*, p. 403, gg. 187, 1943.

Paratetranychus sp., Ehara, Zool. Mag., : Vol. 63, p. 83, 1954.

Female. Body from above widely oval, 360μ long and 260μ wide in widest part. Colour reddish-brown. Last segment of palpus thicker than long; terminal sensillum broad, nearly twice as long as wide; dorsal



6 7 8 9

Figs. 6–9. *Paratetranychus inouei* n. sp. 6. Dorsal view of female. 7. Distal part of palpus of female. 8. and 9. Aedeagus.

1) In 1933, *Paratetranychus brevipilosus* was transferred by Zacher himself into the genus *Eurytetranychus*, but the present author, in the present state, cannot give a definite conclusion on this problem.

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sensillum very slender; 5 additional setae borne on "thumb." Mandibular plate emarginate mediodistally, though somewhat variable individually in degree; length to breadth ratio 10:6. Legs shorter than body. Leg I with relative lengths of segments as follows: Trochanter, 11; femur, 21; patella, 12; tibia, 13; tarsus, 19. Tarsus I dorsally provided with 2 sets of duplex setae rather closely set; 5 setae borne proximad of proximal set of duplex setae; proximal duplex setae of tarsus I with proximal member about one-third as long as distal member; distal duplex setae of tarus I with proximal member about one-fourth as long as distal member. Empodial claw of leg I slender, sickle-shaped, with 10 proximoventral setae, these not exceeding claw; 4 tenent hairs borne on onychium, one pair on each side of claw base. One perfect and one imperfect eye cornea on each side. Peritreme slender, ending in triangularly dilated portion. Dorsum of body with mostly transverse striae; dorsal setae well developed, slender and tapering, much longer than intervals between bases, very finely pubescent, and not arising from tubercles; postanal setae well developed. Eggs red, spherical.

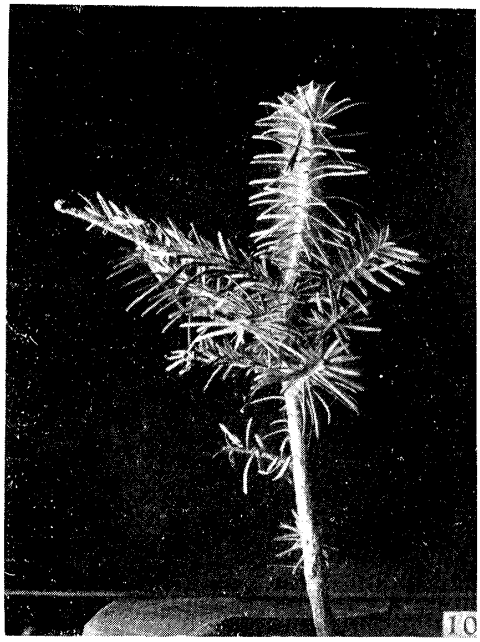

Fig. 10. Photograph of a sapling of the todo-fir, *Abies Mayriana*, injured by feedings of *Paratetranychus inouei* n. sp.

Male. Body from above sagittate in outline, 270μ long and 160μ wide in widest part. Accessories on last segment of palpus are similar in arrangement to those in female; dorsal sensillum very slender. Aedeagus with dorsal conspicuous basilar lobe; shaft bending downward nearly 90° from its axis to form hook which is much shorter than shaft; hook is reduced towards distal portion which is extremely thin.

Holotype. Male, Kawayu Strain (original locality, Kawayu; natural and laboratorial host, *Picea jezoensis*), Sept. 30, 1953.

Paratypes. Three males and ten females, Kawayu Strain, Sept. 4, 1953; one male and three females, Tsugitate Strain (original locality, Tsugitate; natural and laboratorial host, *Abies Mayriana*), Aug. 25, 1953; two females, Mombetsu Strain (original locality, Mombetsu; natural and laboratorial host, *Abies Mayriana*), Aug. 25, 1953.

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The holotype and paratypes are deposited in the Zoological Institute, Faculty of Science, Hokkaido University.

Distribution and hosts. Hokkaido (Kawayu, Prov. Kushirokoku, on the ezo-spruce, *Picea jezoensis*; Tsugitate, Prov. Sorachi, on the todo-fir, *Abies Mayriana*; Mombetsu, Prov. Hidaka, on the todo-fir, *Abies Mayriana*).

Remarks. *Paratetranychus inouei* n. sp. is similar to *P. ununguis*[1] (Jacobi, 1905), but is different in the form of the aedeagus (Hirst, '24; McGregor, '50), and also in the structure of the distal portion of the peritreme of the female (Geijskes, '39, and others). Judging from Hirst's description, in the English specimens of *P. ununguis* the dorsal sensillum of the male palpus is stouter than that of the present species, the organ being very slender in the latter species. The new species has also probably some resemblance to *P. pini* Hirst, 1924, but is distinguishable from the latter by the form of the aedeagus, the slenderer dorsal sensillum of the palpus in both sexes, and the last segment of the palpus, which exceeds the claw in both sexes. *Paratetranychus inouei* n. sp. is injurious to saplings of some useful conifers in Hokkaido, and is probably common in this island.

LITERATURE CITED

Geijskes, D. C. 1939. Meded. Landb. Hoogesch. Wageningen, **42**: 1.
Hirst, S. 1920. Proc. Zool. Soc. London, **1920**: 49.
——— 1924. Ann. Mag. Nat. Hist., **9**: 522.
McGregor, E. A. 1950. Amer. Midl. Nat., **44**: 257.
Zacher, F. 1932. Zool. Anz., **97**: 177.
——— 1933. Mitt. Zool. Mus. Berlin, **19**: 584.

1) Thanks to Dr. E. A. McGregor, the author has had an opportunity of examining the American specimens of *P. ununguis* (Jacobi).

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